E/ECE/324
E/ECE/TRANS/505 } Rev.1/Add.36/Rev.2/Amend.5

16 February 2000

AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF THESE PRESCRIPTIONS */

(Revision 2, including the amendments entered into force on 16 October 1995)

Addendum 36: Regulation No. 37

Revision 2 - Amendment 5

Incorporating:
Corrigendum 1 to Supplement 10 to the 03 series of amendments subject of Depositary Notification C.N.263.1998.TREATIES-60 dated 2 July 1998
Corrigendum 1 to Supplement 11 to the 03 series of amendments subject of Depositary Notification C.N.302.1998.TREATIES-69 dated 6 August 1998
Supplement 16 to the 03 series of amendments - Date of entry into force: 17 May 1999
Supplement 17 to the 03 series of amendments - Date of entry into force: 17 November 1999
Supplement 18 to the 03 series of amendments - Date of entry into force: 13 January 2000

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF FILAMENT LAMPS FOR USE IN APPROVED LAMP UNITS OF POWER-DRIVEN VEHICLES AND OF THEIR TRAILERS

UNITED NATIONS

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*/ Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

GE.00-20448

Contents, Annex 1, amend to read (deleting also sheets H2 and S4 and inserting a new footnote */)

"Annex 1

Sheets R2	
Sheets H1	
Sheets H3	
Sheets H4	
Sheets P21W	(only for signalling lamps)
Sheet P21/4W	(only for signalling lamps)
Sheets P21/5W	(only for signalling lamps)
Sheet R5W	(only for signalling lamps)
Sheet R10W	(only for signalling lamps)
Sheet C5W	(only for signalling lamps)
Sheets C21W	(only for signalling lamps)
Sheet T4W	(only for signalling lamps)
Sheet W5W	(only for signalling lamps)
Sheet W3W	(only for signalling lamps)
Sheets S1 and S2	
Sheet S3	
Sheets HS1	
Sheets HS2	
Sheets PY21W	(only for signalling lamps)
Sheet H6W	(only for signalling lamps)
Sheets HB3	
Sheets HB4	
Sheet T1.4W	(only for signalling lamps)
Sheets H7	
Sheets H27W/1 and H27W/2	
Sheets P27W	(only for signalling lamps)
Sheets P27/7W	(only for signalling lamps)
Sheet WY5W	(only for signalling lamps)
Sheets H21W	(only for signalling lamps)
Sheets W21W	(only for signalling lamps)
Sheets W21/5W	(only for signalling lamps)
Sheets W2.3W	(only for signalling lamps)
Sheets H8	
Sheets W16W	(only for signalling lamps)
Sheets HIR1 */	
Sheets PY27/7W	(only for signalling lamps)
Sheets HIR2	
Sheets H9 */	
Sheets H10	
Sheets H11	
Sheets H12	
Sheets WY21W	(only for signalling lamps)

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*/ HIR1 and/or H9 filament lamps shall only be permitted to produce passing beam in conjunction with the installation of headlamp cleaning device(s) conforming to Regulation No. 45. In addition, with respect to vertical inclination, the provision of paragraph 6.2.6.2.2. of Regulation No. 48, 01 series of amendments, shall not be applied when these lamps are installed.

This restriction shall apply as long as there is no general agreement on the use of levelling devices and headlamp cleaners with respect to the level of the performance of the headlamp."

The text of the Regulation,

Paragraph 2.4.2.1., footnote 4/, amend to read:

"4/ ... 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35-36 (vacant), 37 for Turkey, 38-39 (vacant), 40 for The former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Community (Approvals are granted by its Member States using their respective ECE symbol) and 43 for Japan. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement."

Annex 1,

Sheet R2/1, replace in the table the IEC sheet number by "sheet 7004-95-5".

Sheets H2, should be deleted.

Sheet H4/1, replace in the table "+ 0.45 - 0.25" by "+ 0.35 - 0.25".

Sheet P21/4W/1, replace in the table the IEC sheet number by "sheet 7004-11C-2".

Sheet W3W/1, correct the heading "CATEGORY W3W Sheet W3W/1" to read "CATEGORY W5W Sheet W5W/1".

Sheet W5W/1, correct the heading "CATEGORY W5W Sheet W5W/1" to read "CATEGORY W3W Sheet W3W/1".

Sheets S4, should be deleted.

Sheet H7/2, replace in the table the IEC sheet number by "sheet 7004-5-3", and for "Dimension f in mm" correct the value of "4.5" to read "4.1".

Sheet H27W/2, replace in the table the IEC sheet number by "sheet 7004-107-2".

Sheet W21W/1, correct in the table the IEC sheet number "(sheet 7004-105-2)" to read "(sheet 7004-105-1)".

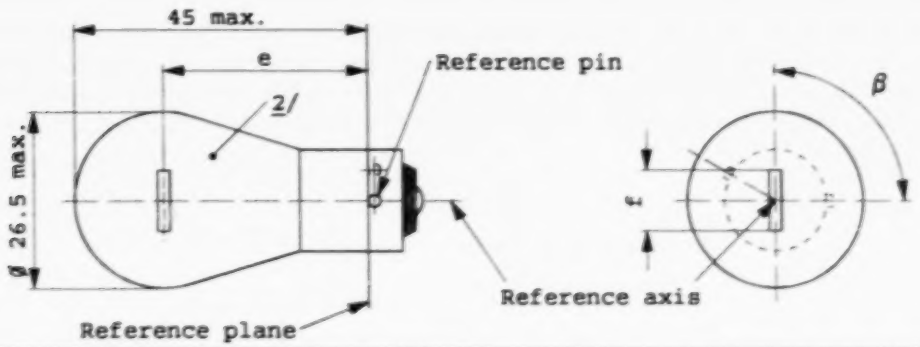
Sheet H8/2, replace in the table the IEC cap designation by "PGJ 19-1".

Sheets PY21W/1 to PY21W/3 (existing), replace by the new sheets PY21W/1 and PY21W/2, to read (see below):

Sheets H3/1 to H3/6 (existing), replace by the new sheets H3/1 to H3/4, to read (see below):

Add at the end new sheets H11/1 to H11/4, H12/1 to H12/3 and WY21W/1 to WY21W/2, to read (see below):

CATEGORY PY21W Sheet PY21W/1



DIMENSIONS in mm	Filament lamps of normal production			Standard filament lamp
	min.	nom.	max.	
e		31.8 3/		31.8 ± 0.3
f 4/			7.0	7.0 $^{+0}_{-2}$
Lateral deviation 1/		3/		0.3 max.
β	75°	90°	105°	90° ± 5°
Cap BAU15s in accordance with IEC Publ. 61 (sheet 7004-19-1)				
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	V	12	24	12
	W	21		21
Test voltage	V	13.5	28.0	
Objective values — Watts	W	26.5 max.	29.7 max.	26.5 max at 13.5V
Objective values — Luminous flux	lm	280		
	±%	20		
Reference luminous flux :	Amber bulb: 280 lm Clear bulb: 460 lm	at approx. 13.5 V		

1/ Maximum lateral deviation of filament centre from two mutually perpendicular planes both containing the reference axis and one containing the axis of the reference pin

2/ The bulb of production lamps shall be amber. (See also note 5/).

3/ To be checked by means of a box system, sheet PY21W/2.

4/ For 24-Volt heavy-duty lamps having a different filament shape, additional specifications are under consideration.

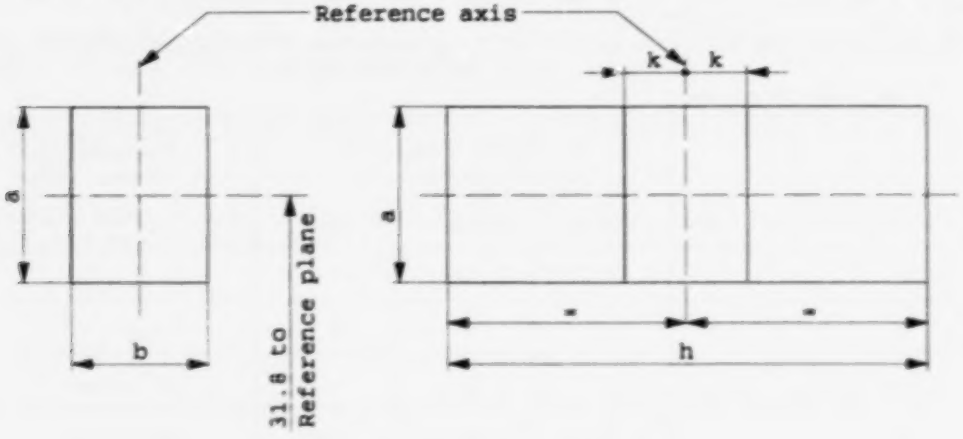
5/ The bulb of standard filament lamps shall be amber or clear. For amber standard filament lamps, changes of the bulb temperature shall not affect the luminous flux which might impair photometric measurements of signalling devices. Moreover the colour shall be in the lower part of the tolerance area.

CATEGORY PY21W Sheet PY21W/2

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and the reference plane and has an axis perpendicular, within ± 15°, to the plane through the centre line of the reference pin and the reference axis, whether a filament lamp complies with the requirements.

Side elevation Front elevation



Reference	a	b	h	k
Dimension	3.5	3.0	9.0	1.0

Test procedures and requirements.

1. The filament lamp is placed in a holder capable of being rotated about its axis and having either a calibrated scale or fixed stops corresponding to the angular displacement tolerance limits. The holder is then so rotated that an end view of the filament is seen on the screen on to which the image of the filament is projected. The end view of the filament shall be obtained within the angular displacements tolerance limits.

2. Side elevation
The filament lamp placed with the cap down, the reference axis vertical and the filament seen end-on, the projection of the filament shall lie entirely within a rectangle of height "a" and width "b", having its centre at the theoretical position of the centre of the filament.

3. Front elevation
The filament lamp placed with the cap down and the reference axis vertical, the filament lamp being viewed in a direction at right angles to the filament axis:

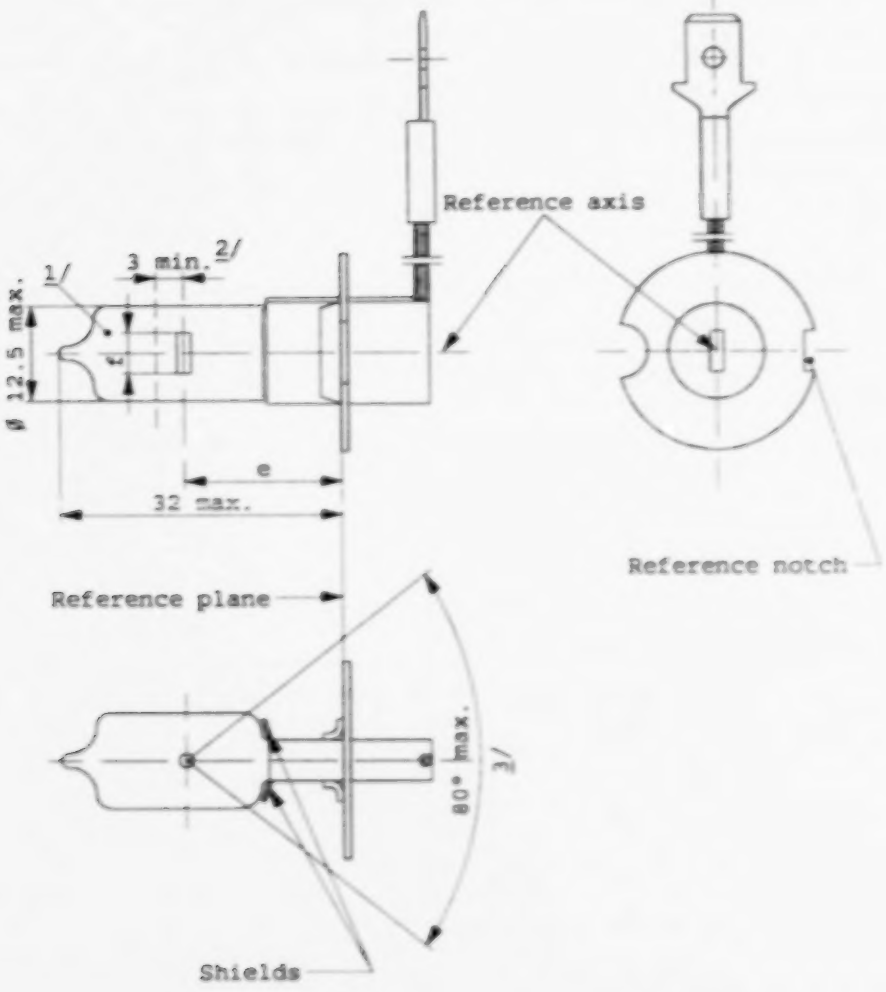
3.1 The projection of the filament shall lie entirely within a rectangle of height "a" and width "h", having its centre at the theoretical position of the centre of the filament.

3.2 The centre of the filament shall not be offset by more than distance "k" from the reference axis.

CATEGORY H3 Sheet H3/1

The drawings are intended only to illustrate the essential dimensions of the filament lamp

Dimensions in millimetres



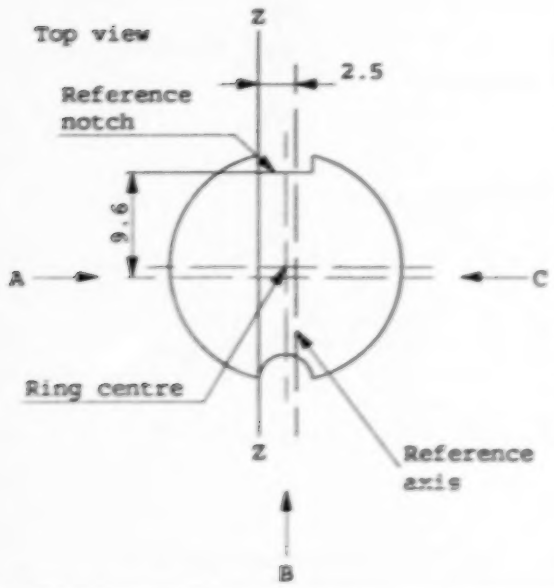
1/ Bulb colourless or selective-yellow.

2/ Minimum length above the height of the light emitting centre ("e") over which the bulb shall be cylindrical.

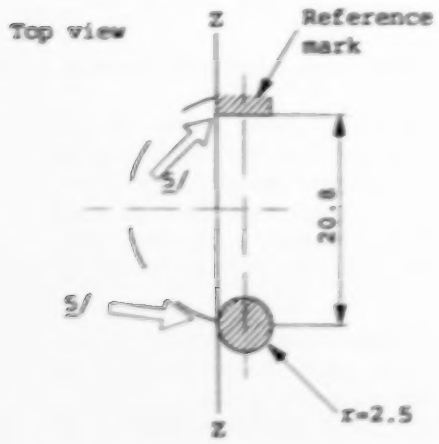
3/ The distortion of the base-end portion of the bulb shall not be visible from any direction outside the obscuration angle of 80° max. The shields shall produce no inconvenient reflections. The angle between the reference axis and the plane of each shield, measured on the bulb side, shall not exceed 90°.

CATEGORY H3 Sheet H3/2

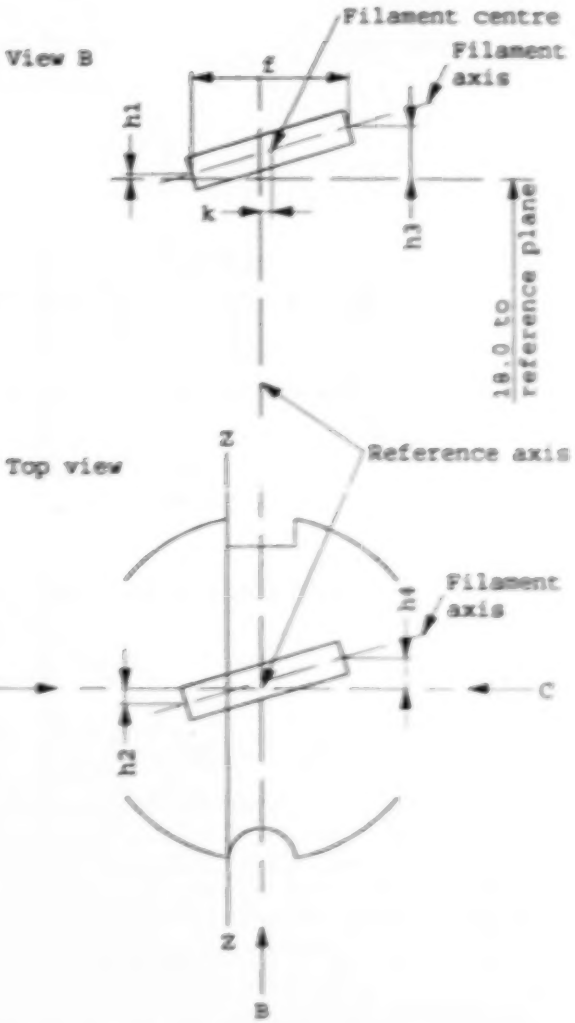
Definition: Ring centre and reference axis 4/



Definition of Z - Z line



Filament position and dimensions



View A: measuring h2
View B: measuring k,h1,h3,f
View C: measuring h4

4/ The permissible deviation of the ring centre from the reference axis is 0.5 mm in the direction perpendicular to the Z-Z line and 0.05 mm in the direction parallel to the Z-Z line.

5/ The cap shall be pressed in these directions.

CATEGORY H3 Sheet H3/3

Dimensions in mm		Filament lamps of normal production			Standard filament lamp
		6 V	12 V	24 V	12 V
e		18.0 5/			18.0
f 8/		3.0 min.	4.0 min.		5.0 ± 0.50
k		0 5/			0 ± 0.20
h1, h3		0 5/			0 ± 0.15 7/
h2, h4		0 5/			0 ± 0.25 7/
Cap PK 22s in accordance with IEC Publication 61 (sheet 7004-47-4)					
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS					
Rated values	Volts	6	12	24	12
	Watts	55		70	55
Test voltage	Volts	6.3	13.2	28.0	13.2
Objective values	Watts	63 max.	68 max.	84 max.	68 max.
	Luminous flux lm	1050	1450	1750	
	±%	15			
Reference luminous flux: 1100 lm at approx. 12V					

5/ To be checked by means of a "box-system"; sheet H3/4.

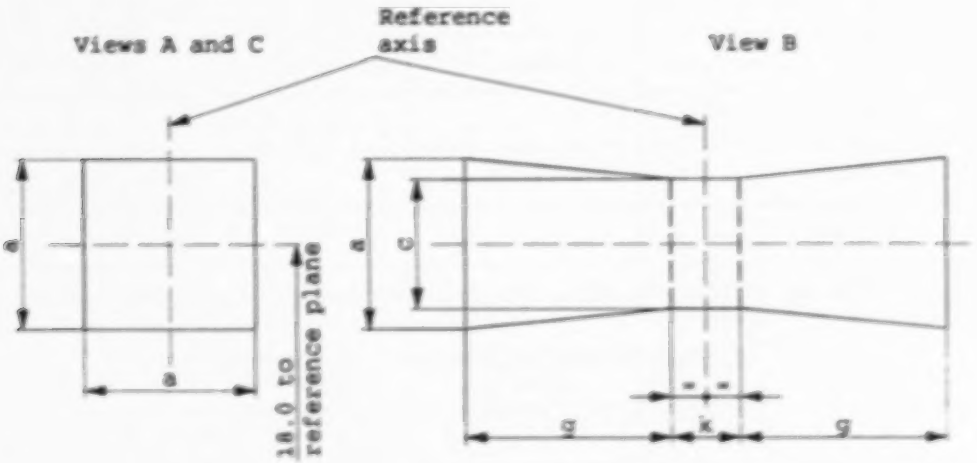
7/ For standard filament lamps the points to be measured are those where the projection of the outside of the end turns crosses the filament axis.

8/ The positions of the first and the last turn of the filament are defined by the intersections of the outside of the first and of the last light emitting turn, respectively, with the plane parallel to and 18 mm distant from the reference plane (additional instructions for coiled-coil filament are under consideration.

CATEGORY H3 Sheet H3/4

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and the reference plane , whether a filament lamp complies with the requirements.



	a	c	k	g
6 V	1.8 d	1.6 d	1.0	2.0
12 V				2.8
24 V				2.9

d = diameter of filament

The filament shall lie entirely within the limits shown.

The centre of the filament shall lie within the limits of dimension k.

CATEGORY H11 Sheet H11/1

The drawings are intended only to illustrate the essential dimensions of the filament lamp.

Dimensions in millimetres

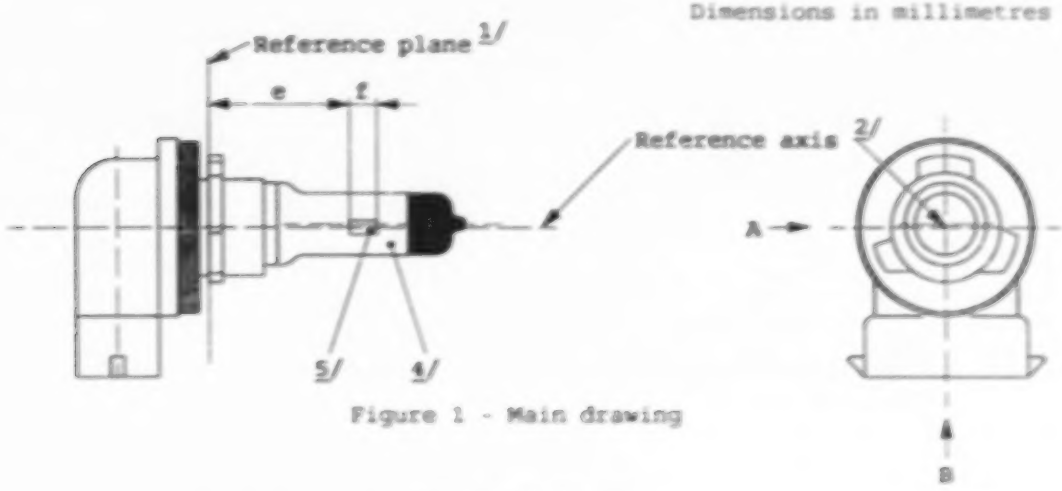


Figure 1 - Main drawing

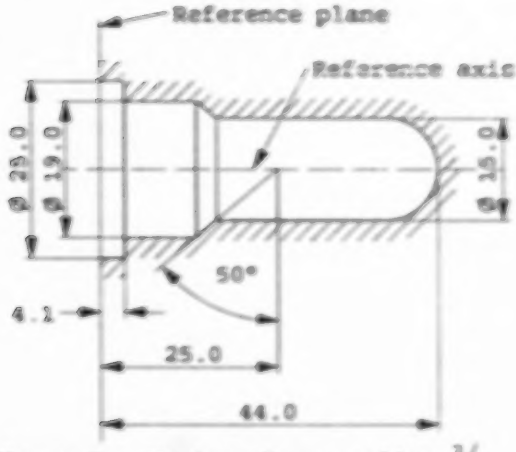


Figure 2 - Maximum lamp outline 3/

1/ The reference plane is the plane formed by the underside of the beveled lead-in flange of the cap.

2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.

3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.

4/ The bulb shall be coulourless or yellow.

5/ Notes concerning the filament diameter.
- No actual diameter restrictions apply but the objective for future developments is to have d max. = 1.4 mm
- For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.

CATEGORY H11 Sheet H11/2

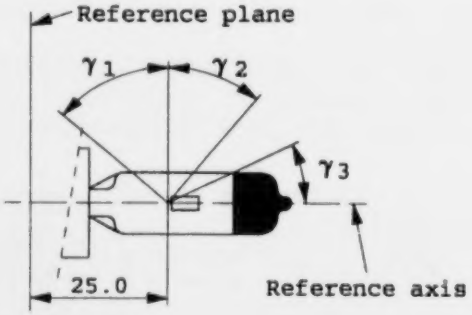


Figure 3 - Distortion free area 6/ and black top 7/

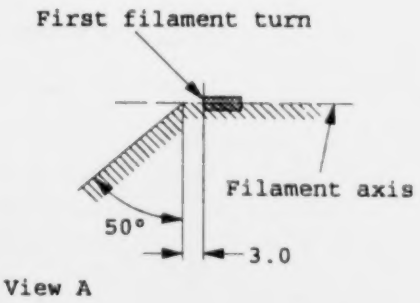


Figure 4 - Metal free zone 8/

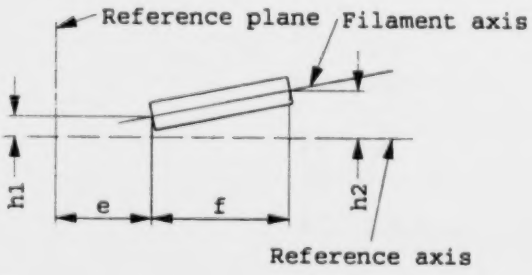


Figure 5 - Offset of filament axis 9/ (for standard filament lamps only)

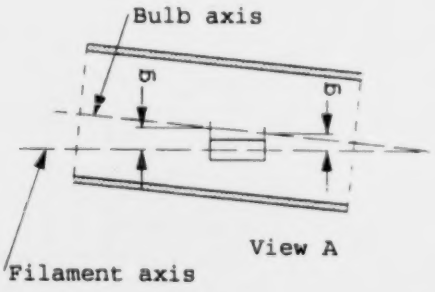


Figure 6 - Bulb eccentricity 10/

6/ Glass bulb shall be optically distortion free within the angles γ_1 and γ_2. This requirement applies to the whole bulb circumference within the angles γ_1 and γ_2

7/ The obscuration shall extend at least to angle γ_3 and shall extend at least to the cylindrical part of the bulb on the whole bulb top circumference

8/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the_horizontal direction. (View A as indicated in figure 1, sheet H11/1).
No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.

9/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 on sheet H11/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

10/ Eccentricity of bulb with respect to filament axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

CATEGORY H11 Sheet H11/3

Dimensions in mm		Filament lamp of normal production		Standard filament lamp
		12 V	24 V	12 V
e 11/		25.0	12/	25.0 ± 0.1
f 11/		4.5	5.3 12/	4.5 ± 0.1
g		0.5 min.		u.c.
h1		0	12/	0 ± 0.1
h2		0	12/	0 ± 0.15
γ_1		50° min.		50° min.
γ_2		40° min.		40° min.
γ_3		30° min.		30° min.
Cap PGJ 19-2 in accordance with IEC Publication 61 (sheet 7004-110-1)				
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	Volts	12	24	12
	Watts	55	70	55
Test voltage	Volts	13.2	28.0	13.2
Objective values	Watts	62 max.	80 max.	62 max.
	Luminous flux lm	1350	1600	
	±%	10	10	
Reference luminous flux for headlamp testing: 1000 lm at approx. 12V				

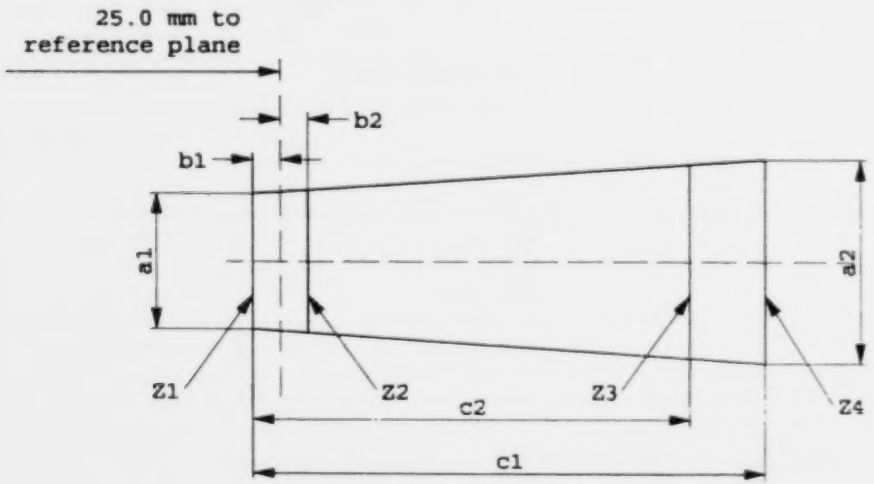
11/ The ends of the filament are defined as the points where, when the viewing direction is View A as shown in figure 1, sheet H11/1, the projection of the outside of the end turns crosses the filament axis.

12/ To be checked by means of a "Box system", sheet H11/4.

CATEGORY H11 Sheet H11/4

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and the reference plane, whether a lamp complies with the requirements.



	a1	a2	b1	b2	c1	c2
12 V	d + 0.3	d + 0.5	0.2		5	4.2
24 V	d + 0.6	d + 1.0	0.25		6.3	4.6

d = diameter of filament

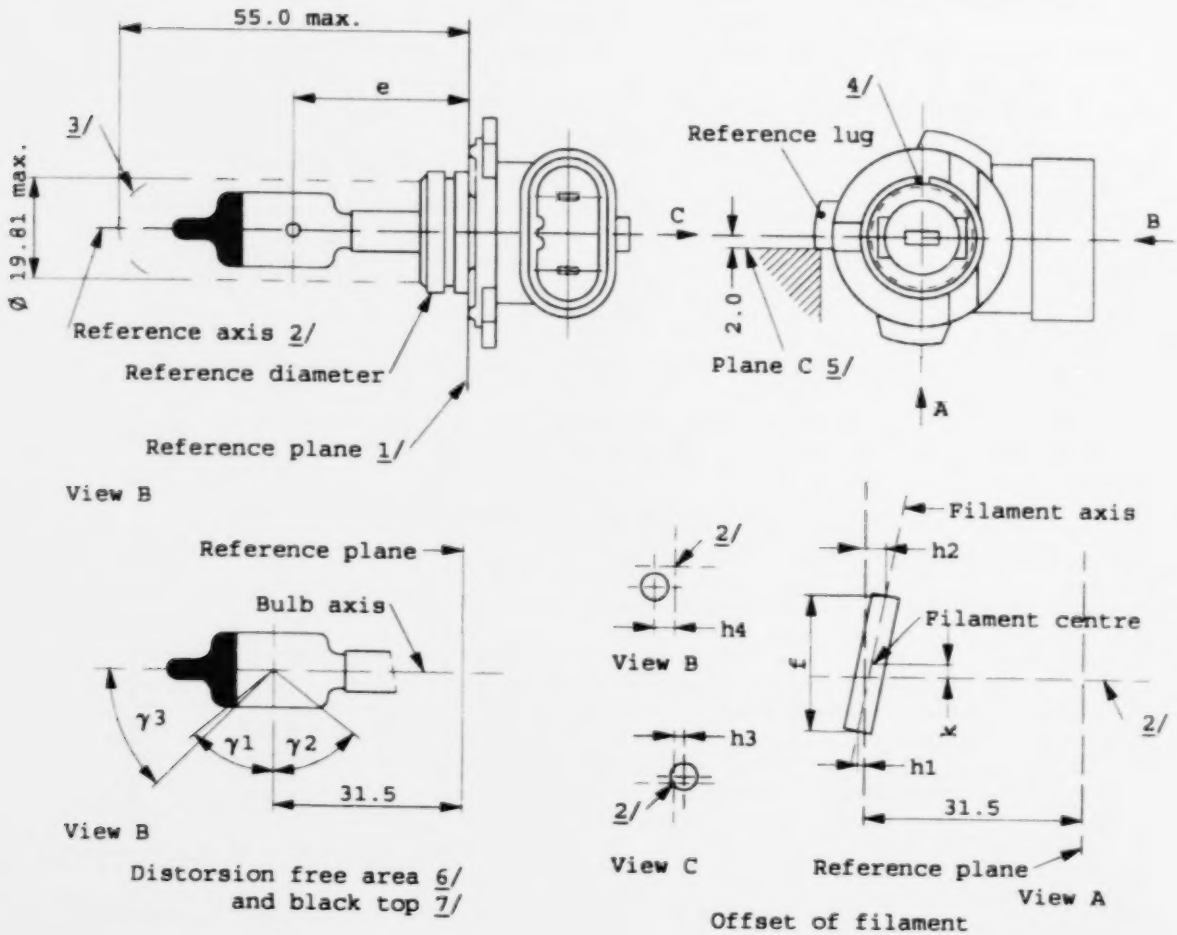
The filament position is checked solely in directions A and B as shown on sheet H11/1.

The ends of the filament as defined on sheet H11/3, note 11/ shall lie between lines Z1 and Z2 and between lines Z3 and Z4.

The filament shall lie entirely within the limits shown

CATEGORY H12 Sheet H12/1

The drawings are only to illustrate the essential dimensions of the filament lamp



Distorsion free area 6/ and black top 7/

Offset of filament

1/ The reference plane is the plane defined by the meeting points of the cap-holder fit.

2/ The reference axis is perpendicular to the reference plane and concentric with the reference diameter of the cap.

3/ Glass bulb and supports shall not exceed the envelope and shall not interfere with insertion past the lamp key. The envelope is concentric to the reference axis.

4/ The keyway is mandatory.

5/ The filament lamp shall be rotated in the measuring holder until the reference lug contacts plane C of the holder.

6/ Glass bulb periphery shall be optically distortion-free axially within the angles $\gamma 1$ and $\gamma 2$. This requirement applies to the whole bulb circumference within the angles $\gamma 1$ and $\gamma 2$.

7/ The obscuration shall extend to at least angle $\gamma 3$ and shall be at least as far as the undistorted part of the bulb defined by angle $\gamma 1$.

CATEGORY H12 Sheet H12/2

Dimensions in mm 8/		Tolerances	
		Filament lamps of normal production	Standard filament lamp
e 9/ 10/	31.5	11/	± 0.16
f 9/ 10/	5.5	11/	± 0.16
h1,h2, h3,h4	0	11/	± 0.15 12/
k	0	11/	± 0.15 13/
γ_1	50° min.		
γ_2	52° min.		
γ_3	45°	± 5°	± 5°
Cap PZ20d in accordance with IEC Publ. 61 (sheet 7004-31-2)			
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS			
Rated values	Volts	12	12
	Watts	53	53
Test voltage	Volts	13.2	13.2
Objective values	Watts	61 max.	61 max.
	Luminous flux lm	1050	
	± %	15	
Reference luminous flux: 775 lm at approx. 12V			

8/ Dimensions shall be checked with O-ring removed.

9/ The viewing direction is direction A as shown in the figure on sheet H12/1.

10/ The ends of the filament are defined as the points where, when the viewing direction as defined in note 9/ above, the projection of the outside of the end turns crosses the filament axis.

11/ To be checked by means of a "box-system". Sheet H12/3.

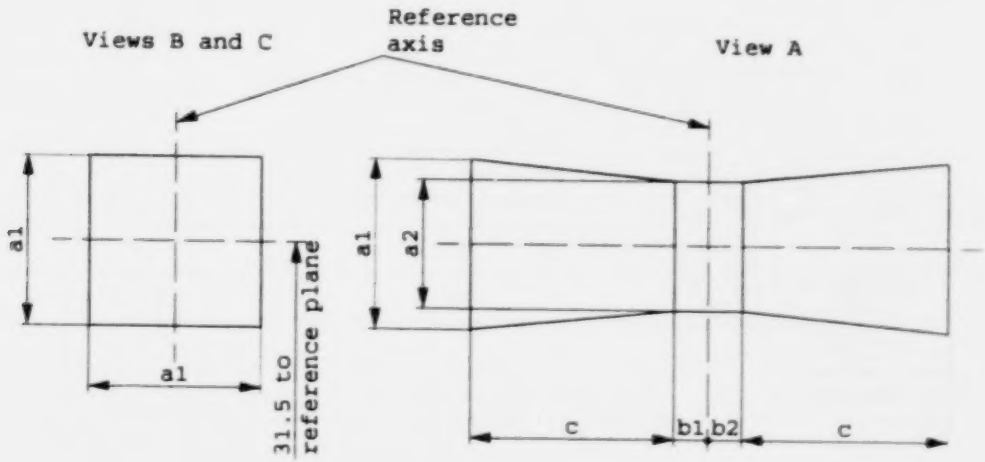
12/ Dimensions h1 and h2 are measured in viewing direction A, dimension h3 in direction C and dimension h4 in direction B as shown in the figure on sheet H12/1. The points to be measured are those where the projection of the outside of the end turns crosses the filament axis.

13/ Dimension k is measured only in viewing direction A.

CATEGORY H12 Sheet H12/3

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and the reference plane, whether a filament lamp complies with the requirements.



a1	a2	b1	b2	c
1.6 d	1.3 d	0.30	0.30	2.8

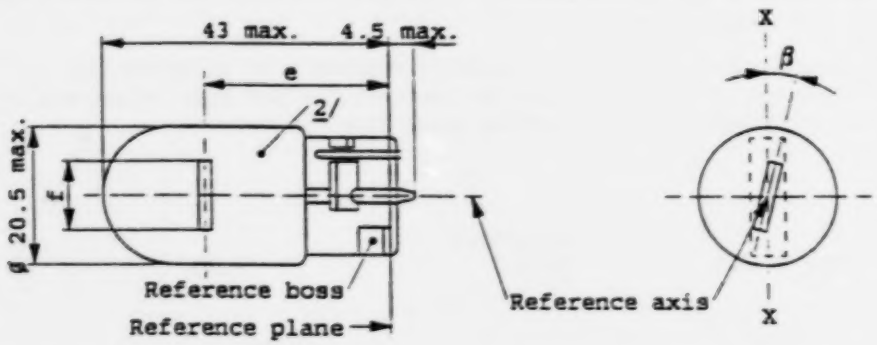
d = diameter of filament

For the directions of view A, B and C see sheet H12/1

The filament shall entirely lie within the limits shown.

The center of the filament shall lie between the limits of dimensions b1 and b2.

CATEGORY WY21W **Sheet WY21W/1**



DIMENSIONS in mm		Filament lamps of normal production			Standard 4/ filament lamp
		min.	nom.	max.	
e			29.0 3/		29.0 ± 0.3
f				7.5	7.5 $^{+0}_{-2}$
Lateral deviation 1/				3/	0.3 max
β		-15° 3/	0°	+15° 3/	0° ± 5°
Cap WX 3x16d in accordance with IEC Publ. 61 (sheet 7004-105-2)					
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS					
Rated values	Volts	12			12
	Watts	21			21
Test voltage	Volts	13.5			
Objective values	Watts	26.5 max			26.5 max at 13.5 V
	Luminous flux lm	280			
	±%	20			
Reference luminous flux : Amber bulb: 280 lm Clear bulb: 460 lm at approx. 13.5 V					

1/ Maximum lateral deviation of filament centre from two mutually perpendicular planes both containing the reference axis and one containing the axis X-X.

2/ The bulb of production lamps shall be amber. (See also note 4/).

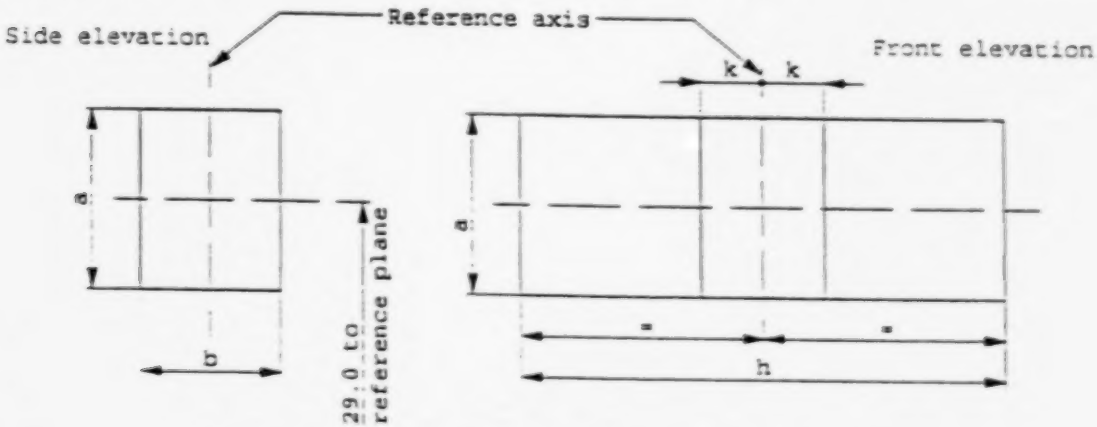
3/ To be checked by means of a box system, sheet WY21W/2.

4/ The bulb of standard filament lamps shall be amber or clear. For amber standard filament lamps, changes of the bulb temperature shall not affect the luminous flux which might impair photometric measurements of signalling devices. Moreover the colour shall be in the lower part of the tolerance area.

CATEGORY WY21W **Sheet WY21W/2**

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and the reference plane and has an axis perpendicular, within ± 15°, to the plane through the axis X-X and the reference axis, whether a filament lamp complies with the requirements.



Reference	a	b	h	k
Dimension	3.5	3.0	9.5	1.0

Test procedure and requirements.

1. The filament lamp is placed in a holder capable of being rotated about its axis and having either a calibrated scale or fixed stops corresponding to the angular displacement tolerance limits, i.e ± 15°. The holder is then so rotated that an end view of the filament is seen on the screen on to which the image of the filament is projected. The end view of the filament shall be obtained within the angular displacements tolerance limits (± 15°).

2. Side elevation
The filament lamp placed with the cap down, the reference axis vertical and the filament seen end-on, the projection of the filament shall lie entirely within a rectangle of height "a" and width "b", having its centre at the theoretical position of the centre of the filament.

3. Front elevation
The filament lamp placed with the cap down and the reference axis vertical, the filament lamp being viewed in a direction at right angles to the filament axis:

3.1. the projection of the filament shall lie entirely within a rectangle of height "a" and width "h", having its centre at the theoretical position of the centre of the filament;

3.2. the centre of the filament shall not be offset by more than distance "k" from the reference axis.